Current Status of the Hungarian HLW Disposal Programme

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„IAEA Interregional Training Course on Methodologies for Geologic Disposal"
Lawrence Berkeley National Laboratories, 18th-26th October, 2004

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Introduction

- **1996: Act on Atomic Energy**

  Defined the tasks:
  - Final disposal of radioactive waste
  - Interim storage and final disposal of spent nuclear fuel
  - Decommissioning of nuclear facilities

  Established the financial background:
  - Central Nuclear Financial Fund (CNFF)
  - The waste producers pay into CNFF

- **1997: governmental decision:**

  Established Public Agency for Radioactive Waste Management (PURAM) to carry out the above mentioned tasks.

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History of Strategy Building

- **1970s - 1982:**
  Full reliance on SNF back-shipment to SU with no waste back
  1989 –1998: 2331 SNF assemblies were shipped back
- **1991 decision:**
  maintaining the possibility of return shipment to Russia domestic alternative has to be developed
  1992: preparation for construction of an ISFS and site investigations to find a suitable host rock for a DGR were started
- **1999 decision**
  SNF can be stored at ISFSF maximum 50 years
  New strategy has to be built

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Current Status of Strategy Building

- **2001**
  A detailed study was performed by the Spanish ENRESA, which evaluated the different options for Hungary, which has little nuclear capacity and will have very little amounts of HLW and SNF. Seven strategies were defined.
- **2003**
  The Hungarian TS Enercon Ltd. defined the areas, which have to be evaluated and the information, which has to be collected for being able to compare the strategies.
- **Currently**
  There is no approved strategy in Hungary for the back-end of the fuel cycle. The open fuel cycle is considered as a 'reference scenario' by PURAM for the cost calculations.

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Cumulated Amounts of HLW and SNF

(up to the end of the life-time of the reactors)

Waste stream	Amount	Current storage
Institutional HLW	100 m^3	Püspökszilágy
Operational HLW of NPP	163 m^3	on site wells
Decommissioning HLW of NPP	247 m^3	-
SNF from Paks NPP	11266 pcs	on site pools 2129 ISFS 3497
SNF from research reactor	3177 pcs	on site pools
SNF from training reactor	48 pcs	-

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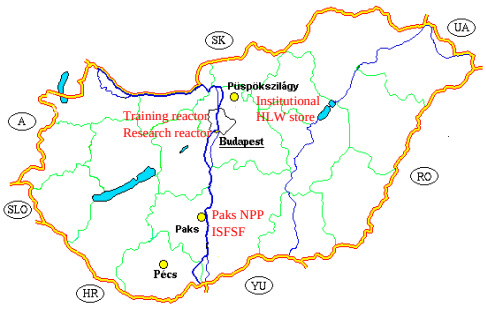
Location of Nuclear Facilities



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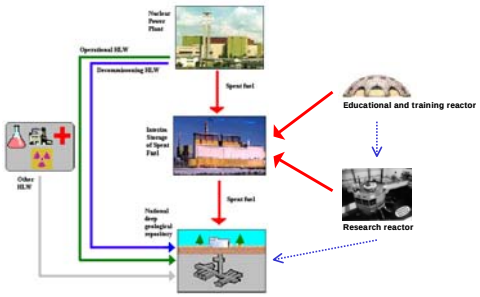
Scheme of the Disposal Concept



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Investigations for DGR (1)

- Background
  - Uranium mining activities in the west Mecsek since the 50's
  - 1989-92 investigations of Boda Claystone Formation (BCF)
- The formation may be suitable for HLW disposal
  - 1993-95 „Alfa" project: surface based and underground investigation of the formation
  - 1994 URL was excavated: in situ underground measurements
- Canadian-Hungarian inter-governmental agreement: the Canadian AECL provides support for the investigations
  - The deatailed investigation programme requires 10-15 years of investigations (long-term programme)

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Investigations for DGR (2)

- Decision on closing the uranium mine, so a short-term programme had to be carried out
- **1995-98 short-term programme**

  As a result of the investigation programme it was stated that there were no circumstances, which can exclude the suitability of the formation.
- Nevertheless the results were promising, the minister of economy decided to close the URL in parallel with the closure of the uranium mine.

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Investigations for DGR (3)

- **1999 national screening was carried out**
  - Negative screening
  - Multi attribute analysis of the potentially suitable areas

  The screening has showed that the area of the West-Mecsek is the most suitable for hosting a DGR.
- 2003 the investigations were restarted with the „mid-term" programme (2003-08)
  - It is governed by the needs of the safety assessments
  - The main aim is to define the area, where the new URL should be sited

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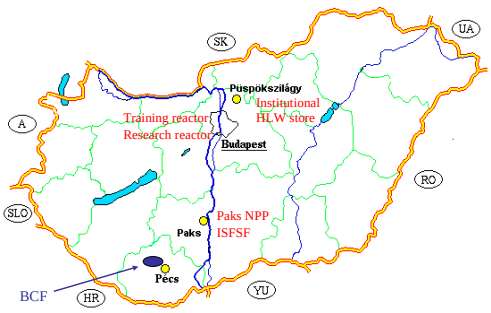
Location of Boda Claystone Formation



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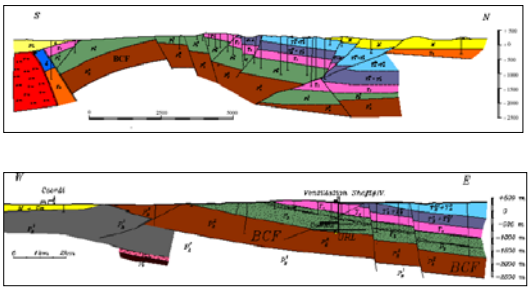
The Cross-sections of BCF



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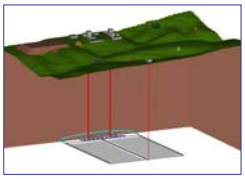
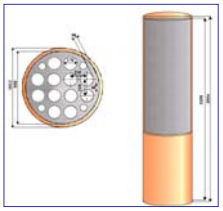
The Conceptual Design

- The planned depth is 700-800 m
- Vertical approach shafts
- URL constructed first





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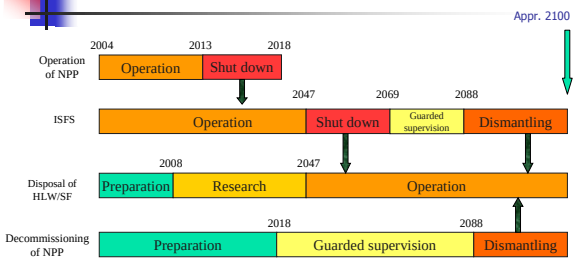
Time Schedule



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Thank You for Your Attention!

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